Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **14BT2001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **BASICS OF BIOCHEMISTRY** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | | | | **Course outcome** | | **Marks** |
| **PART-A (40X1=40 MULTIPLE CHOICE QUESTIONS)** | | | | | | | |
| 1. | Which among the following is a monosaccharide? | | | | | CO-1 |  |
|  | a. Maltose | b. Starch | c. Sucrose | d. Galactose | |  | (1) |
| 2. | What is the empirical formula of carbohydrate? | | | | | CO-1 |  |
|  | a. (C5H2O)n | b. (CH2O)n | c. (C2H2O)n | d. (CHO)n | |  | (1) |
| 3. | Find out the sugar alcohol from the given list: | | | | | CO-1 |  |
|  | a. Glyceraldehyde | b. Sorbitol | c. Ribose | d. Erythrose | |  | (1) |
| 4. | Choose the ketose sugar from the given list of sugars: | | | | | CO-1 |  |
|  | a. Glucose | b. Maltose | c. Erythrulose | d. Galactose | |  | (1) |
| 5. | How many chiral carbons are there in Fischer structure of glucose? | | | | | CO-1 |  |
|  | a. One | b. Two | c. Three | d. Four | |  | (1) |
| 6. | Ribose is a: | | | | | CO-1 |  |
|  | a. Disaccharide | b. Monosaccharide | c. Polysaccharide | d. Oligosaccharide | |  | (1) |
| 7. | Sucrose sugar answer for the following test: | | | | | CO-1 |  |
|  | a. Iodine test | b. Benedicts test | c. Seliwanoff’s test | d. Barfoed’s test | |  | (1) |
| 8. | Give one example for non-reducing sugar from the given list: | | | | | CO-1 |  |
|  | a. Trehalose | b. Maltose | c. Lactose | d. Galactose | |  | (1) |
| 9. | Which among the following is the storage polysaccharide? | | | | | CO-1 |  |
|  | a. Chitin | b. Pectin | c. Glycogen | d. Cellulose | |  | (1) |
| 10. | The fiber conformation is formed by \_\_\_\_\_\_\_\_\_\_\_\_\_\_. | | | | | CO-1 |  |
|  | a. Amylose | b. Amylopectin | c. Glycogen | d. Cellulose | |  | (1) |
| 11. | Pick up the unsaturated fatty acid from the given list. | | | | | CO-1 |  |
|  | a. Stearic acid | b. Acetic acid | c. Palmitic acid | d. Oleic acid | |  | (1) |
| 12. | Identify the PUFA from the list: | | | | | CO-1 |  |
|  | a. Oleic acid | b. Arachidonic acid | c. Lauric acid | d. Palmitic acid | |  | (1) |
| 13. | Potassium salt of fatty acid is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | | | | | CO-1 |  |
|  | a. PUFA | b. Soap | c. Emulsion | d. Triglyceride | |  | (1) |
| 14. | Which among the following is the main function of lipids in human body? | | | | | CO-1 |  |
|  | a. Energy | b. Genetic material | c. Muscle Strength | d. Enzymes | |  | (1) |
| 15. | Why do we have more unsaturated lipid in cell membrane? | | | | | CO-1 |  |
|  | a. Solidification | b. Freezing | c. Fluidity in cold | d. Saponification | |  | (1) |
| 16. | Which among the following are the simple lipids | | | | | CO-1 |  |
|  | a. Wax | b. Lecithin | c. Cholesterol | d. Glycolipid | |  | (1) |
| 17. | The lipid used as emulsifier in food industries (ice cream/candy) is \_\_\_\_\_\_\_\_\_. | | | | | CO-1 |  |
|  | a. Cephalin | b. Lecithin | c.Ganglioside | d. Cholesterol | |  | (1) |
| 18. | Identify the wax from the following list of compounds: | | | | | CO-1 |  |
|  | a. Tristearin | b. Lanolin | c.Cephalin | d.Lecithin | |  | (1) |
| 19. | The triglyceride with only saturated fatty acid is \_\_\_\_\_\_\_\_\_\_\_ in nature. | | | | | CO-1 |  |
|  | a. Solid | b. Liquid | c. Solid and Liquid | d. Semi solid | |  | (1) |
| 20. | The process which converts unsaturated fat into saturated or *trans*-fat is \_\_\_\_\_\_\_\_\_\_. | | | | | CO-1 |  |
|  | a. Halogenation | b. Hydrogenation | c. Emulsification | d. Saponification | |  | (1) |

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| 21. | Identify the sulfur containing amino acid: | | | | CO-1 |  |
|  | a. Proline | b. Alanine | c. Glycine | d. Methionine |  | (1) |
| 22. | Which is the aromatic amino acid from the list? | | | | CO-1 |  |
|  | a. Valine | b. Tyrosine | c. Histidine | d. Proline |  | (1) |
| 23. | Pick up the essential amino acid from the following: | | | | CO-1 |  |
|  | a. Leucine | b. Asparagine | c. Serine | d. Alanine |  | (1) |
| 24. | Zwitter ionic amino acid has \_\_\_\_\_\_\_\_\_\_\_\_ net charge. | | | | CO-1 |  |
|  | a. +1 | b. Zero | c. -1 | d. +2 |  | (1) |
| 25. | Select the significant small peptide hormone from the given molecules: | | | | CO-1 |  |
|  | a. Titin | b. Cytocrome C | c. Oxytocin | d. Haemoglobin |  | (1) |
| 26. | The secondary structure seen in silk fibroin is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | | | | CO-1 |  |
|  | a. Linear amino acid | b. α-helix | c. β-sheet | d. β-helix |  | (1) |
| 27. | Identify the simple protein from the following: | | | | CO-1 |  |
|  | a. Glycoprotein | b. Lipoprotein | c. Albumin | d. Nucleoprotein |  | (1) |
| 28. | Pick up the storage protein from the given list: | | | | CO-1 |  |
|  | a. Tubulin | b. Antibody | c. Ferritin | d. Actin |  | (1) |
| 29. | At what wavelength the proteins absorb maximum UV light? | | | | CO-1 |  |
|  | a. 260nm | b. 280nm | c. 300nm | d. 290nm |  | (1) |
| 30. | Which is a protein in the given molecules? | | | | CO-1 |  |
|  | a. Choline | b. Cystein | c. Protease | d. Glucose |  | (1) |
| 31. | How many hydrogen bonds are there between A and T in DNA structure? | | | | CO-2 |  |
|  | a. One | b. Two | c. Three | d. Four |  | (1) |
| 32. | The pentose sugar present in RNA is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | | | | CO-2 |  |
|  | a. α-Ribose | b. β-Ribose | c. α-Deoxy Ribose | d. β- Deoxy Ribose |  | (1) |
| 33. | Nucleotides can also act as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | | | | CO-2 |  |
|  | a. Enzyme | b. Co-Enzyme | c. Hormone | d. Fat |  | (1) |
| 34. | Chargaff’s rule for DNA base composition says \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | | | | CO-2 |  |
|  | a. A + T = A + G | b. A + G = T + A | c. A + T = G + C | d. A + G = T + C |  | (1) |
| 35. | How many base pairs are there in Watson and Crick model of DNA structure? | | | | CO-2 |  |
|  | a. 11 | b. 12 | c. 13 | d. 10 |  | (1) |
| 36. | One of the class of rRNA present in prokaryotes is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | | | | CO-2 |  |
|  | a. 23s | b. 28s | c. 18s | d. 5.8s |  | (1) |
| 37. | Which is the wavelength at which the nucleic acid absorb maximum UV light? | | | | CO-2 |  |
|  | a. 280nm | b. 290nm | c. 260nm | d. 270nm |  | (1) |
| 38. | Vitamin B3 is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. | | | | CO-3 |  |
|  | a. Thiamin | b. Riboflavin | c. Niacin | d. Biotin |  | (1) |
| 39. | Which Vitamin maintains the level of calcium and phosphorus? | | | | CO-3 |  |
|  | a. Vitamin A | b. Vitamin D | c. Vitamin E | d. Vitamin C |  | (1) |
| 40. | Which of the following mineral is essential to maintain osmotic pressure? | | | | CO-3 |  |
|  | a. Ca2+ | b. Phosphorus | c. Sodium | d. Copper |  | (1) |

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| **PART B(8 X 5 = 40 MARKS) (ANSWER ANY EIGHT)** | | | |
| 41. | Give the difference between structural and stereoisomers with one example for each. | CO-1 | (5) |
| 42. | How does the disaccharide maltose structure is formed? | CO-1 | (5) |
| 43. | Brief on any one homopolysaccharide with structure | CO-1 | (5) |
| 44. | Why the phospholipids are amphiphilic in nature? | CO-1 | (5) |
| 45. | Write the significance of any 2 phospholipids. | CO-1 | (5) |
| 46. | How the triglyceride is formed? Illustrate the reaction. | CO-1 | (5) |
| 47. | What are the 2 forms of secondary structure of proteins? Explain it with example. | CO-1 | (5) |
| 48. | Comment on the biological significance of different minerals. | CO-3 | (5) |
| 49. | List out any five Vitamins with their deficiency symptoms. | CO-3 | (5) |
| 50. | Sketch the general structure of nucleotides and detail it. | CO-2 | (5) |
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| **PART C( 2 X 10 = 20 MARKS) (ANSWER ANY TWO)** | | | |
| 51. | Classify monosaccharides with one example for each group with structure. | CO-1 | (10) |
| 52. | Describe the properties of triglycerides or fats. | CO-1 | (10) |
| 53. | Write all the different functions of proteins. | CO-1 | (10) |

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